



Lighting, Inc.



Presco•lite
Life Safety Products

December 19, 2002

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Energy Efficiency Programs
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Dear Ms. Hoffmeyer:

I'd like to commend all involved on the Energy Star Program Requirements for Exit Signs, Revision 3 (draft). The changes were clearly well researched and thoughtfully prepared. Several items caught my eye as significant improvements:

- No grandfathering – this policy is clearly required. It makes no sense to place the Energy Star label on inferior products, even if they once met older program requirements.
- The new definition of exit sign is great: the broadened definition opens the field for future designs and technologies, while the light output requirements maintain high standards for safety. And the decision to include required external light sources for photoluminescent products is right on target. Such considerations are feasible, and important.
- I'm glad to see Energy Star is open to pictograms and other possible legends in future.
- Light output – this is an important item, and it's great that Energy Star chose to keep high standards. Research and common sense indicate light output directly affects visibility. After all, safety is the primary reason these products exist.

There were a few items that warrant further consideration:

- UL 924: The draft specification makes a few references to UL924. The Energy Star specification needs to specify the intended revision of UL924, since there is currently no ANSI recognized edition. And in the past there have been instances where UL tested to a newer, non-ANSI recognized 924 (8th), while the NRTLs tested to an earlier but ANSI recognized version (6th). I propose wording that requires the use of the latest effective UL924 edition.
- Power factor: Specifying power factor as a separate item may not provide the intended results. Compare an exit which measures 3W at .8 lagging pf (acceptable) with one measuring 2.25W at .6 lagging pf (not acceptable) – they both place the same load on the utility: 3.75 VA. I'm also concerned that leading power factor is not limited. I assume the rationale is based on typical situations with lagging power factor for an entire building. However, this assumption may not be true in all cases, plus it will encourage manufacturers to use more capacitive input circuits on electrical exit signs. Capacitive inputs are very unforgiving of sub-optimal design, product quality, and input harmonic distortion, with potentially disastrous results. Ideally, I would place a maximum limit on apparent power (VA). This will make it easier for manufacturers to test and certify, and it ensures that we meet our goals of reducing utility requirements. If Energy Star insists on using separate limits for watts and power factor, I propose a leading power factor minimum of 0.5.
- Testing each and every model of an exit sign can be time consuming. Most companies offer a variety of options and combinations, many of which have no effect on energy demand or light output performance. I suggest allowing tests based on worst-case models. Obviously, some justification for the selected model must be provided.

- Input power demand: LEDs currently offer the best balance of light output, energy efficiency, and lumen degradation for exit signs. Unfortunately, it will be hard for even LED exit signs to meet the proposed 3W requirement while providing the specified light output for a reasonable length of time. I'm glad to see the Energy Star philosophy of raising the bar so that only 25% of available products meet the specification. However, our analysis shows the 3W requirement will result in compliance by only about 5% of available products. Remember that there are several other exit sign technologies that won't meet this specification: electroluminescent (low energy consumption, but fast light output degradation), incandescent (high energy consumption), fluorescent (high energy consumption), photoluminescent (high energy consumption by the charging light source plus low light output), and self-luminous (low light output). I propose raising the level to 5W or less per sign for this edition. Since technology will continue to improve, Energy Star can revisit this in a couple of years and probably reduce the maximum level.

Again, I commend those involved on a thoughtful revision to the specification. With some minor changes, this will be a major improvement in the program.

Please feel free to contact me with questions or comments on the above.

Sincerely,

A handwritten signature in black ink, appearing to read "John Leonard". The signature is written in a cursive, flowing style.

John Leonard
Vice President, Engineering & Product Development